PEASE DISTRICT PARK: KINGSBURY COMMONS

AUSTIN, TEXAS

MAINTENANCE & OPERATIONS REPORT

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1.0 INTRODUCTION

1.1 BACKGROUND

Kingsbury Commons ("the Park") is an approximately 7-acre parcel in the southern end of Pease District Park, an 84-acre public park owned by the City of Austin ("the City"). The Pease District Park is bounded roughly by Lamar Boulevard, Kingsbury Street, Windsor Road, Parkway Street and West 24th Street.

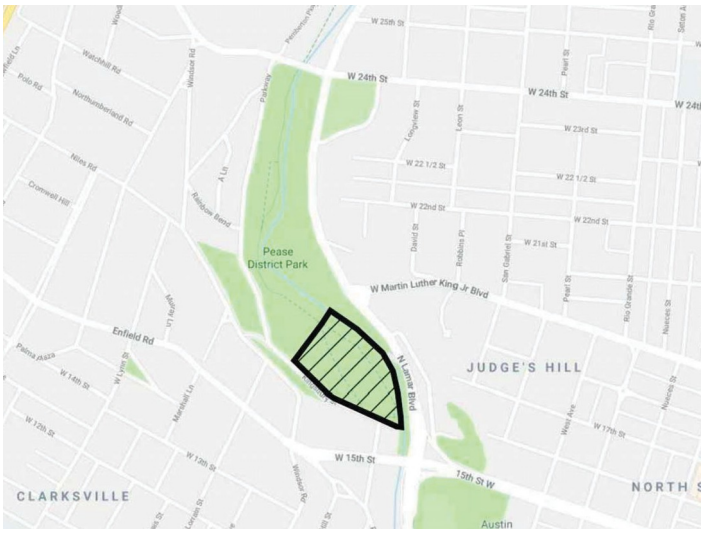


Figure 1a. *Site Boundary Map*

The Park is located adjacent to residential neighborhoods and serves as an important community asset. The redesign will create a landscape that reflects the needs of adjacent neighborhoods and opens up opportunities for medium to larger events. The proposed planting and restored landscapes will provide ample shade and better site stormwater management. The expansive lawn area will allow existing park programs to continue and offer flexibility for more events and activities; the newly designed play area and recreational facilities will accommodate the needs of children of all ages; and the addition of a park facility building will support day-to-day operations and provide restroom facilities for park users.

Currently, the Austin Parks and Recreation Department ("PARD") is responsible for management and maintenance of the Park. Upon completion of the Park redesign, it is assumed that the Pease Park Conservancy ("PPC") and the City will share responsibility for maintenance, and the PPC will be responsible for operations of the improved areas. The Park will continue to be under the ownership of the City.

A Parkland Improvement Donation Agreement was executed on May 6, 2019 which obligates PPC to operate and maintain the interactive water feature. As of April 2021, a Park Operating & Maintenance Agreement is being negotiated for the balance of Kingsbury Commons. This report is intended to inform and delineate the O&M obligations of the parties in that agreement.

An illustrative site plan of the amenities and features is included as Figure 1b. A detailed listing and description of features and amenities is included as Figure 1c.

1.2 THE IMPORTANCE OF MAINTENANCE

The goal of maintenance is to ensure the Park is clean, attractive, safe, and provides a high-quality visitor experience. Quality maintenance work is done by those who have a vested interest and take pride in their work, understand how the Park is used and operates, and have the necessary skills to do what is required.

High quality maintenance is essential to protect the long- term capital investment of the redesign. Establishing and continuing to employ high maintenance standards with either in-house staff or contracted services will protect the public/private investment for many years to come.

Figure 1b. Illustrative Site Plan of Amenities & Features

Kingsbury Commons Amenities & Features

FEATURE	DESCRIPTION
Tudor Cottage	The restoration of the historic Tudor Cottage will provide nearly 500 sq. ft. of new meeting and event space. The interior will contain new A/V capabilities and seating space for up to 40 people, and space for up to 90 people standing. The north side of the building will be replaced by swinging glass doors that open to the adjacent Terrace, allowing the space to fill with light. The exterior brick and roof will be rehabilitated.
Treehouse	The treehouse is an iconic observatory in the trees. Visitors wind through the forest and across a bridge before arriving at an observation deck in the tree canopy. Visitors will peek out to the park through playful openings in the treehouse shell, or lie in a net, suspended 15' above the ground, and look up to the sky above.

Great Lawn	The 2.5-acre Great Lawn will provide sweeping views across the park and to downtown. The existing lawn will be leveled and planted with new grass. It will be able to support a wide range of events and activities and provide much-needed open green space in downtown.
Interactive Water Feature	The new interactive water feature will provide water play for all ages of children. Kids will build dams and move water with moveable limestone rocks at the inlet, and parents can sit on the limestone benches that surround the water play area. New trees will be planted in and around the feature, providing much needed shade.
Tudor Cottage Terrace	The Terrace at the Tudor Cottage provides a formal outdoor gathering space adjacent the Tudor Cottage. Permanent limestone banco seating will offer views of the park below, and a comfortable spot to work or relax. At night, the Terrace is illuminated by overhead festoon lights. During an event, the Terrace can support up to 72 guests at banquet tables, and up to 90 total seated guests.
Volunteer & Storage Facility	The volunteer and storage facility will provide nearly 450 sq. ft. of new storage for Pease Park's many volunteer opportunities. A pair of sliding doors will allow volunteers to easily filter in and out with tools and materials. On the south facade of the volunteer building will be the donor recognition wall. The building will also contain the water feature equipment and the control room for much of the park's infrastructure.
Kingsbury Spring	The Kingsbury Spring will celebrate the underlying hydrology and geology of Pease Park by revealing spring water from the Kingsbury hillside at the park's surface. The spring intercepts excess spring water from adjacent Kingsbury street before it enters a storm drain and brings it through Kingsbury Commons through a series of beautiful planted water features. It is both an educational tool and a unifying feature in the park.
Young Kids Play Equipment	7 new pieces of state-of-the-art playground equipment, made of natural materials like wood and rope, replace the existing plastic features. Includes, climbing nets, a balance beam, spinners, stump steps for older children and a climbing and sliding course for small children.
Outdoor/Volunteer Plaza	Between the restroom building and volunteer building is a paved limestone plaza centered around a large canopy tree. This area will be a great gathering space for volunteers to enjoy their breakfast tacos and coffee before heading out to the park. Running up the hillside behind the plaza is a stone block seating area that makes for a great outdoor classroom.
Basketball/Sport Court	A new full-sized basketball court sits next to the Big Field, surrounded by planting, shade and seating.
Ballfield, Backstop	The existing ballfield area will be regraded and planted with grass, to create a smoother, safer field. A new backstop will be built, with mesh materials that will match other elements of the new design and will provide visual interest in addition to functionality.

Entry Wall	The limestone block entry wall will serve as the initial greeting of all visitors to the park. The park name is carved into large limestone blocks that sit directly in front of the Great Lawn. The wall is surrounded by native planting and is lit at night.
Bocce/Petanque Court	A new regulation bocce size court along the Shoal Creek trail can support both bocce and petanque. It is situated under the canopy of existing oaks, and next to the existing historic walls, which double as seating.
Bike Racks	40 new bike racks, with 18 near the Tudor Cottage and 22 near the Shoal Creek Trail Bridge
Nature Play (Fort Building, Ropes)	The Nature Play area is a designated area within an existing motte of trees that will be stocked with branches, ropes, stumps, rocks, and other natural materials for children to use to build forts, tunnels, playhouses, or whatever they can imagine. The nature play area exists to let children play in a less controlled natural environment.
Swings	A variety of swing experiences are provided in the new design, including traditional swing set, a nest swing for multiple users, and swing scales.
Display Planting	Native understory shrubs and grasses are planted throughout Kingsbury Commons, providing a backdrop and buffer between buildings, paths, and areas of activity.
ADA Ramp and Stairs to Terrace/Treehouse	An ADA path ties together the Tudor Cottage, Terrace, Restroom and Volunteer Buildings, and Treehouse to the play areas, winding through existing and new trees. The path from the Restroom to the Cottage will be lit at night.
Ribbon Wall	The ribbon wall is the element that ties Kingsbury Commons together. An 18" wide limestone band winds through the entry and play areas, around the interactive water feature, through the volunteer plaza, up the hillside and ends at the Kingsbury Spring. The ribbon steps up and down- sometimes it is a seat, sometimes a step, sometimes a wall, sometimes a gateway to a play area.
Tree Planting	New canopy trees are planted throughout Kingsbury Commons. A range of common and unique native species increase diversity of the already impressive canopy.
Benches	16 new contemporary park benches throughout Kingsbury Commons.

Figure 1c. Listing of Amenities & Features

2.0 BASIS OF MAINTENANCE RECOMMENDATIONS

2.1 MAINTENANCE PRINCIPLES

High quality maintenance ensures that the site is clean, attractive, and usable for visitors, while also maintaining any special functions or site features, e.g. play features, water features, stormwater management, etc. To achieve the highest levels of service for maintenance, a number of principles should guide maintenance work:

- Classifying maintenance standards (the levels of service);
- Having an effective management and maintenance process; and
- Ensuring that those performing maintenance and repair have the needed skills and equipment for the tasks.

2.1.1 CREATION OF STANDARDS

The recommended standards of care in this report referenced PARD's service maintenance standards (Level 2) as a baseline. PARD's standards were adjusted to meet the higher needs of the Park, reflecting the elevated PPC requirements in response to the project's landscape design, proposed materials, and anticipated usage.

Maintenance tasks and frequencies detailed in the spreadsheets (see end of report) aim to achieve the standards needed to provide a healthy, well- maintained public landscape and to protect the capital investment. Actual maintenance will ultimately be based on usage, weather, standards of care, and available maintenance resources. For instance, litter removal may need to be done more frequently during heavy-use months and less frequently during times of light use. The frequencies used to define the standards for the Park represent the "typical needs" to be performed over the course of the year.

Higher maintenance is needed during the initial establishment period for the planting areas but is expected to diminish once the plants establish. The establishment period will vary, ranging from 1 year for turf grasses to 5-10 years for woodland areas.

2.1.2 SEASONALITY

Austin's climate generally ranges from very hot summer days to mild winter days, with some limited freezing temperatures in winter months. Therefore, it is assumed that the drinking fountain, irrigation, and water feature will not operate year-round due to potential freezing and will be winterized in late fall with a spring start up. The Park is not expected to get ice and snow regularly.

Because of Austin's climate, plants grow throughout the year, with some seasonal slowing of growth during winter and extremely hot summer months. Maintenance work should reflect these changes in growth. For example, mowing of lawn will occur more frequently (once every 4-7 days) during Spring and the Fall seasons, and less frequently (once every 10-14 days) during November to February, and in August when plant growth has slowed.

2.2 SPECIAL EVENTS MAINTENANCE IMPACTS

Special events are an important component for parks and public spaces, as they have the potential to attract visitors and generate revenue. Precisely because these types of events can draw large numbers of visitors, it is essential that they are carefully planned, scheduled and operated. Even with thorough planning, special events can cause damage to landscapes, and this damage must be addressed quickly to maintain the desired aesthetics and function. It is assumed that the Park will increase the number of events from current levels.

For the purposes of this report, special events are defined as:

- One-time or annual events whose primary purpose is to entertain.
- Events that primarily use the park/public space as a venue.
- Events that typically have little or no connection to the park/public space beyond the use of it as a venue.
- Events that can impact the park/public space landscape.

The primary impact from special events is damage to both informal and formal planting areas due to overuse and inadequate rest between events. The hillside woodland areas see heavy trampling from pedestrian traffic during large event days. Continual use of lawns can place undue stress on turf, particularly if events are held back-to-back. Overuse results in compacted soil, which will in turn lead to spotty turf in lawn areas and a lack of understory in the woodland areas, as well as a lowered resistance to pests and disease. Compacted soil also prevents the absorption of rainwater, deprives roots of oxygen, and limits root growth. All of this causes plants to lose their durability and anchoring capacity, thus becoming more vulnerable to wear and tear. As plants thin, the likelihood of severe runoff and erosion increases and further reduces plant recovery. *See 'Restoring Plant Communities - Hillside Woodland Restoration' in Part 3 of the Kingsbury Commons Natural Area Management Guidelines for further recommendations.*

Special events that are not managed properly, or are too large for the area, can contribute to landscape deterioration and increased maintenance costs. Oversized or poorly managed special events also damage other landscape areas. For example, if path systems leading to the event venue do not have the capacity to handle the influx of event crowds, pedestrians may spill over onto adjacent landscape areas and trample plant material and compact soil. Damage to the landscape also occurs during set-up, break-down and clean-up. The use of large vehicles, such as vans, trucks and trailers on site for set-up and removal of stages, sound systems, barricades, vendor tents and general deliveries often entails driving on lawn areas, which further compacts soil and damages turf. Heavy venue schedules with back-to-back events creates situations where it is virtually impossible to maintain a healthy stand of turf because lawns cannot be regularly fertilized, irrigated, aerated, over-seeded and rested.

A secondary impact of special events is on site furnishings, restroom facilities, and hardscape areas. Site furnishings can be damaged through overuse. Hardscape areas are commonly dirtied with litter, food residue and other waste; providing additional trash/recycling collection will be necessary. Pedestrian areas must be inspected, cleaned and repaired after special events to prevent undue deterioration to park amenities.

PPC and the City will consider the impacts of special events in the preparation of the Park Operations and Maintenance Agreement.

3.0 PROPOSED DESIGN & RECOMMENDED MAINTENANCE PRACTICES

3.1 PARK AND PARK FEATURES

The Park design can be divided into 3 general categories: hardscapes, softscapes/natural areas, and site features. Hardscape areas include all paved areas, such as paved surfaces, both permeable and non-permeable pavers, and loose paving materials (EWF and decomposed granite). Softscapes/natural areas include all planted areas, such as lawn, woodlands, display gardens, meadows, rain gardens, and vine edges. Site features includes all furnishing, seating or retaining walls, play features, restroom facilities, and any other features that fall outside of hardscapes and softscapes.

Categorizing these different types of features and materials is the first step in defining maintenance needs. Each landscape and feature type has specific needs, which determines maintenance recommendations and costs associated with the work. For instance, the skills and resources needed to maintain a concrete pathway are different from those needed for lawn maintenance.

3.2 HARDSCAPES

All hardscapes require frequent litter removal and regular cleaning. Depending on the surface type, cleaning may include debris removal with a hand or backpack blower, sweeping, and/or power washing. In general, avoid harsh cleaning products that may damage finishes. Debris removal with an electric blower and power washing should be limited to the morning hours when there are fewer park users. Frequency of litter removal and cleaning will depend on the type of surface and level of use. Inspect hardscapes when performing other maintenance tasks for damage, vandalism, or needed repairs; address issues as soon as they are identified. Remove graffiti or gum as needed, within 48 hours of detection.

3.2.1 CONCRETE PAVED SURFACES

Concrete paved surfaces are the predominant paving material used in the Park. Concrete paving is to be kept litter-free and may require occasional washing and debris removal, particularly in areas of high use or near areas where food and beverages are expected to be consumed. Pavement should be power washed with a fan-tipped nozzle to prevent damage or cleaned with a stiff-bristle broom.

3.2.2 BASKETBALL PLAY SURFACE

The basketball play surface is a concrete base with an acrylic painted surface. The play surface is maintained similarly to concrete surfaces, where keeping the surface clean is a top priority. The surface is to be kept litter-free and may require occasional power washing at lower pressures to remove any accumulate dirt and debris, and to prevent slippery surfaces. The acrylic paint will fade over time and may need to be repainted or replaced.

3.2.3 STABILIZED DECOMPOSED GRANITE

While stabilized decomposed granite will require less overall maintenance than non-stabilized decomposed granite, it is not maintenance-free. Weekly maintenance includes litter removal and a visual inspection of the top surface for loose materials. Normal wear and tear will result in some loose surface material, but overall the material should remain level with no low areas or depressions. When loose material reaches a depth of 1/4", stabilized decomposed granite will need repair following the manufacturer's recommendations. The edging may become exposed from wear and tear or from weathering and become a trip hazard. Inspect edging on a weekly basis and repair as necessary.

Decomposed granite is expected to deteriorate overtime and will require complete replacement.

3.2.4 BOCCE/PETANQUE

The bocce court is a maintenance-intensive area. While the players generally prepare the court, staff should inspect and prep the court daily in the morning. Prep includes leveling the court and putting out any needed equipment for use in the morning; equipment is to be collected and stored at the end of the day. Once a week, staff should rake the court to remove any buried debris. Occasionally, new material will be needed to fill depressions and areas that are worn from use. Inspect the court after heavy rain events to ensure that no material has been washed away.

3.2.5 WET LAID PAVERS

Wet laid paving, such as flagstone and limestone, is installed on a mortared setting bed. Wet laid pavers can be treated similarly to concrete. Test power washing pavers with special finishes prior to cleaning an entire area; harsh cleaning products may damage the finish and if so, they are to be avoided.

3.2.6 ENGINEERED WOOD FIBER

Engineered Wood Fiber (EWF) is a manufactured product with uniform sized virgin softwoods and/or hardwoods.
EWF is used as a play surface. It has minimal bark and is free of twigs, leaf debris, and other organic material.
EWF may be mixed with fine binding particles (made with latex, silicone, or polyurethane) to help knit the fibers together to provide a surface flexible enough to cushion falls, yet firm enough to support wheelchairs.
EWF is porous, allowing water to pass through, but can occasionally freeze in winter and impair drainage. Play areas may need to be closed during freezing weather.

Incorporate regular inspections into routine maintenance. The entire EWF play area needs to be raked and leveled weekly, with attention given to edges and around play structures. A deep raking should be done periodically to remove debris that might have collected below the surface. Pay attention to heavy use areas, where the EWF may need to be replaced or refilled more frequently. Depth inspection of EWF should be done monthly to ensure that proper depth is maintained based on fall height. The depth can vary from 6"-12", and a marking on the base of the play feature can serve as a guide for surface grade. Top off the EWF as needed. The under-drain system or subsurface drainage system will also need inspection to ensure proper drainage, particularly after a heavy rain event, by checking for any standing water, which can be a sign of compaction or clogged drains.

EWF will break down over time and lose its cushioning properties. It may need replacing every 2-3 years, depending on level of use. At least two times annually, staff should dig down in the most heavily used area to determine the structural integrity of the EWF to determine if replacement is needed.

3.2.7 HARDWOOD MULCH TRAIL

Maintenance for the hardwood mulch trail will be similar to that of EWF. The trail will need to be raked and leveled weekly, or more frequently with high use. Bring in new mulch to top off low areas when needed.

3.2.8 DECORATIVE AGGREGATE

The decorative aggregate is a loose 3/8" pea gravel that is used in very selective areas of the park. Like any loose material, the decorative aggregate will require occasional raking and leveling. Since the decorative aggregate is used in areas with limited use, new aggregate may need to be brought in for top off when needed.

3.2.9 GRASSTONE PAVING

The Grasstone paving is a grid paver used as a surface stabilization product that allows water infiltration and vegetation growth. The 8" pavers will allow for occasional vehicular traffic, while reducing soil compaction that would otherwise occur in traditional turfgrass. The pavers are used in a small area by the play area. They will sit on a sand setting bed, with topsoil filled in the cells that will be planted with frogfruit. Frogfruit is a low creeping perennial that flowers from May through October. Like other low growing perennials, trimming or mowing of the plants once a year (maximum) could keep it compact, but avoid mowing during the blooming season, as it can take years to recover. As the plant matures, occasional cut back may be needed when it grows beyond its intended area.

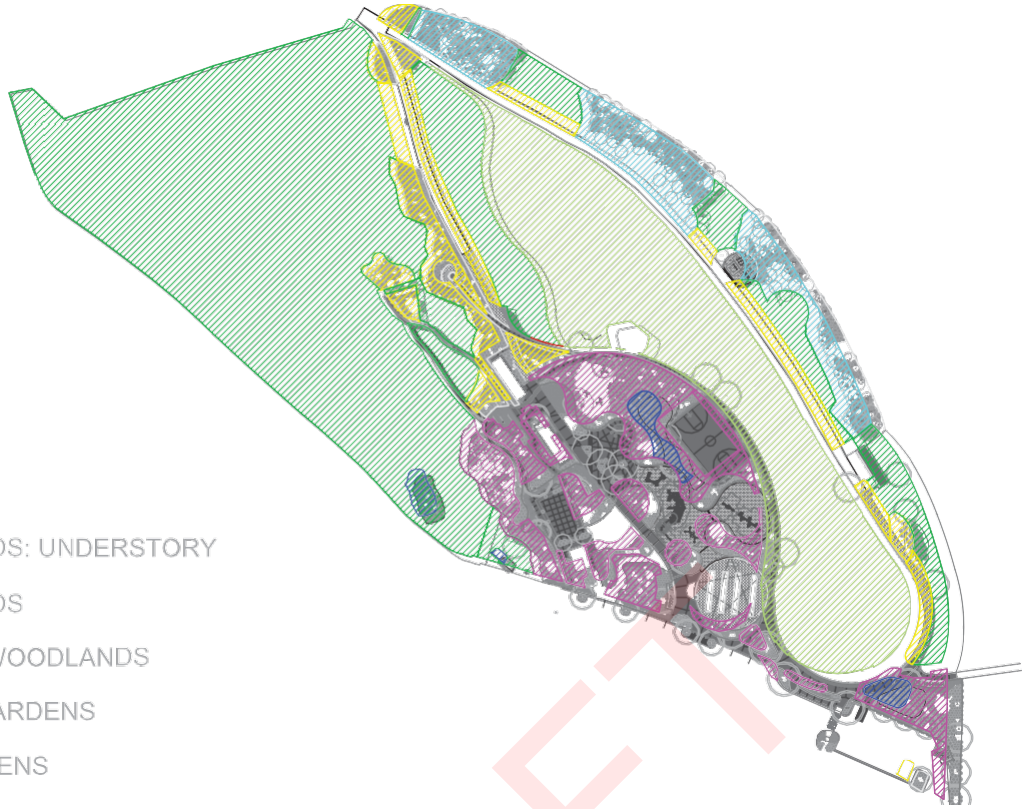
Maintenance of the pavers is limited as they don't typically require cleaning or repair. However, the pavers can settle over time due to the sand setting bed, and when the pavers become excessively uneven or a tripping hazard, they will need to be removed and replaced.

3.3 SOFTSCAPES

The Park features 7 types of softscapes:

- Lawn/turf grass.
- Display garden planting.
- Hillside woodland restoration planting.
- Woodland and understory planting.
- Riparian woodland expansion planting.
- Bioswale/rain garden.
- Vine edges.

General planting needs for each type are described in this report. In general, invasive species removal will prove to be the most important and time-consuming task in ensuring a healthy landscape. (A list of the most common invasive species can be found at the end of this report, as well as in the invasive management section of the Natural



LAWN

WOODLANDS: UNDERSTORY

WOODLANDS

RIPARIAN WOODLANDS

DISPLAY GARDENS

RAIN GARDENS

Area Management Guidelines.) Park use will determine the level of maintenance and the type of work needed. A higher level of maintenance is needed in areas with high use, such as pathway edges or in and around the buildings, picnic areas, and play areas. Temporary fencing should be used to fence off areas undergoing renovation and/or restoration or that need resting. As much as possible, perform maintenance work when landscapes are dry to avoid unnecessary compaction and damage to wet soils. In areas where mulch is applied, maintain a 3-inch depth.

In-depth details on the management and restoration of the natural areas can be found in the Natural Area Management Guidelines.

3.3.1 LAWN

The expansive 3.4-acre lawn area will accommodate both everyday passive use and occasional special events. The Park is expected to host some annual large events, with Eeyore's Birthday Party being the largest signature event with several thousand visitors. While future programs are expected to be no larger than Eeyore's Birthday Party, there may be more large events than currently held in the Park.

Bermudagrass (*Cynodon dactylon*) is the turfgrass selected for Pease Park. Bermudagrass is a warm-season grass and does most of its growing in the summer. In the cooler weather of late-fall and winter, it goes into dormancy and goes through a period of browning until the spring.

In general, turf grass requires regular mowing, irrigation, resting between events, and renovation to remain healthy. Typically, based on Austin's climate, turf grass will require mowing every 4-7 days during the growing season and every 10-14 days during cooler months. The exact mowing schedule will vary depending on use and weather. Bermudagrass prefers a mowing height between 1-2 inches. During periods of stresses, such as high temperatures consider raising the mowing height (up to 2 inches) until the stress is eliminated. In the cooler season, a shorter mow height may be preferred, but avoid cutting the turf grass below 1 inch. Cut no more than a 1/3 grass height during each cut.

Turf grass needs deep watering to establish deep root growth. Irrigate to a depth of 3 inches; shallow watering will encourage shallow roots. Generally, 3/4 to 1 inch of water is needed weekly. Monitor the irrigation system and adjust accordingly to provide the correct amount of water.

Fertilization rates and frequency for lawns should be determined by soil tests results. Typically, high nitrogen fertilizer can be applied in the spring to allow for "recovery" and growth. Monitor turf areas for signs of stress and damage. In areas with excessive wear or stress, especially after an event, fence damaged areas to allow turf to recover. Restoration may be needed, such as additional over seeding and irrigation. If the lawn is severely damaged, part or all of the lawn may need to be resodded.

3.3.2 DISPLAY GARDEN PLANTING

The display garden planting areas will consist of a mix of evergreen and deciduous shrubs, flowering perennials, and ornamental plants. These areas are showy and bloom year-round. This planting type is in heavy- use areas and is expected to be the most maintenance intensive of the non-turf plantings. Plant replacement, when needed, is to be done in both spring and fall, especially along bed edges with a high potential for damage from foot traffic. Pay attention to planting around the play areas. Some deadheading may be needed for flowering plants to encourage continuous bloom. A focus on invasive removal and weeding is needed to allow low growing plants to become established. A layer of mulch will help retain moisture and suppress weeds; maintain the mulch layer to a 3-inch depth. Provide irrigation at approximately 1 inch per week; some supplemental hand watering may be needed.

Woody shrubs and other understory plantings are to be pruned with hand pruners or lopping shears; hedge shears are not to be used. Shrubs are encouraged to retain their natural appearance, with pruning to be done only on an "as-needed" basis. Shrubs should never be pruned into geometric shapes. Remove old seed heads and dead woody parts to encourage new growth.

3.3.3 HILLSIDE WOODLAND RESTORATION PLANTING

Hillside woodland restoration areas consist of a mix of native evergreen and deciduous trees, understory shrubs, and an herbaceous ground cover layer. Due to heavy use, years of neglect and lack of resources, these areas have suffered from compaction, erosion, poor tree health, declining biodiversity, and a lack of healthy understory vegetation. Because of these issues, a restoration plan and the allocation of long-term management resources is needed that includes soil revitalization, mitigation of erosion issues, invasive species control, trail improvements, and seeding and planting to heighten biodiversity. No restoration actions are planned within current construction. When restoration actions are to take place, these areas are primarily located in the sloped woodland on the west side of the project area, bordered by Parkway and Kingsbury Street to the southwest, and the multi-use path to the northeast. *See 'Restoring Plant Communities - Hillside Woodland Restoration' in Part 3 of the Kingsbury Commons Natural Area Management Guidelines for further recommendations.*

3.3.4 WOODLAND AND UNDERSTORY PLANTING

Woodland and understory planting areas are similar to the woodland restoration areas, with a similar mix of native evergreen and deciduous shrubs, flowering perennials, and sedges. However, woodland and understory planting areas are located in more prominent areas that see heavier use and are more visible. These areas are treated as "display woodlands," and kept tidy and maintained, with organic debris and materials removed. The maintenance approach is more intense than in woodland restoration planting areas, despite similar planting types. For example, invasive species removal would be the most intensive and frequent task, done biweekly between April and October. Some perennials may require deadheading and trimming to encourage blooms throughout the season. Replant as needed. In areas adjacent to the trails or pathways, there will be an approximately 5' wide mowing strip on both sides of the trail. However, avoid any mowing to the Riparian Woodland Expansion Planting areas. See planting diagram to confine locations of the riparian woodlands.

3.3.5 RIPARIAN WOODLAND EXPANSION PLANTING

The riparian woodland expansion planting areas are located between the multi-use trail and the Shoal Creek. This landscape type has the potential to encourage wildlife habitats, its dense vegetation will shade out invasive species, provide shades, and improve overall user experience. Additionally, the riparian woodlands will help stabilize the slopes and improve water quality. It is important to note that parts of the riparian woodlands are located adjacent to the pathways and woodland and understory planting. While the woodland and understory planting calls for a 5' wide mowing strip, under no circumstance, should that practice be allowed within the riparian woodlands. Temporary or permanent fencing should be erected to protect the riparian woodlands, especially during establishment period to avoid encroachment, foot traffic, or equipment damage.

"See 'Restoring Plant Communities - Riparian Woodland Expansion' in Part 3 of the Kingsbury Commons Natural Area Management Guidelines for further recommendations."

3.3.6 BIOSWALE/RAIN GARDEN

The bioswale/rain garden areas serve as stormwater management features. Species selected can thrive in dry conditions and tolerate occasional inundation.

Maintenance will be minimal, but the areas will require some regular care, such as inspection for scouring, erosion, sediment and debris accumulation, blockage and water infiltration, as well as horticultural maintenance.

While stormwater management features are low in maintenance, invasive species removal will be an ongoing task. Seeds are likely to be deposited into soil beds from floods and inundation and will require continuous removal to ensure these features do not become overrun with invasives. While regular watering is not necessary for these areas, some spot watering may be needed during extended dry periods and extreme heat. Additionally, these planting areas require regular inspections, particularly before and after storms and rain events.

Per City regulation, fertilizer of any kind (both synthetic and organic) cannot be used in bioswales and rain gardens. However, these planted areas can benefit from a fresh layer of mulch at the beginning of spring. Mulch can soak up pollutants before they reach the soil and helps reduce weed growth. Apply a 2-3" layer of mulch in spring, taking care to not bury the plants.

3.3.7 VINES EDGES

Vines are used around the buildings and trained over structures to create green walls once established. During the establishment period, vines may need to be trained to grow toward these features or as desired. While vines are encouraged to "roam" throughout the structure, some trimming may be required to keep them tidy, and to remove dead leaves during the growing season. At the beginning of spring and in late fall, a severe pruning will be done to remove dead wood. Some plant replacement or replanting may be needed to fill in bare areas. Wind- blown debris may get trapped in planting beds or structures and will need to be removed.

While the vines are encouraged to intermingle, crossvine can be aggressive and may drown out the other vines. Continuous trimming throughout the year will help keep the balance and achieve the intended aesthetics. The creeping fig likes to spread its roots and may require cutback to control the spreading. Virginia creeper has stems that can get into cracks and crevasses. These stems may need to be pried away to prevent them from damaging the surface of the building. Use a flat instrument to scrape the stems off of unintended surfaces.

3.3.8 GENERAL TREE MAINTENANCE

Maintenance of trees will be particularly important. PPC will provide an annual tree planting plan and/or tree care plan for PARD review and approval. Once approved, PARD Forestry will provide a Public Tree Care Permit. The Public Tree Permit records must be maintained by PPC and PARD. An ISA Certified Arborist should oversee all tree care, including pruning, fertilization, and disease treatment. All tree maintenance procedures should follow ANSI A300 Standards for Tree Care Operations, ANSI Z133 Safety Requirements for Arboricultural Operations, and all applicable Best Management Practices. Maintenance will include:

- Regular inspection.
- Regular pruning schedule.
- Proper pruning and sanitation techniques.
- Regular sustained watering for new plantings.
- Mulching.
- Fertilization based on soil samples or diagnosed nutrient deficiency.
- Treatment for insects and diseases as needed.
- Inspection and maintenance of tree stakes and their removal.

The objective in tree pruning is to preserve the structural integrity, design purpose and natural beauty of trees. Branch collars are not to be removed and stubs should not remain. All pruning is to be done in accordance with the guidelines of the Western Chapter of the ISA.

Plant stakes are to be inspected monthly and will need to be adjusted accordingly. Stakes should be removed approximately a year after installation when trees are strong enough to stand on their own. In some instances, an additional year may be needed, but all stakes should be removed by the end of year 2.
Rubber hose and wire used around the trunks should be maintained, loosened or tightened as needed, to avoid girdling and rubbing against the trunks or branches.

For trees planted within the turf areas, maintain a 3-inch depth mulch ring, with a 36-inch radius around trunks or stems. However, avoid placing mulch within 3 inches of trunks or stems.

3.3.8.1 Existing Trees

While measures have been taken during construction to ensure existing trees are not damaged, they may still suffer through stress but will take a period of time before any sign is shown. The larger the tree, the longer it takes to show signs of distress. Maintenance staff should perform visual inspections during routine maintenance and look for signs such as unusual dropping and yellowing of leaves. Thorough inspections should be done on quarterly or biannual basis. Inspection involves identifying any potential abnormality by examining the roots, trunk, branches and leaves for signs of pest infestation or diseases. Address these issues based on the ISA-certified arborist's recommendations.

3.4 SITE FEATURES

Site features include furnishings and site amenities, such as the Tudor Cottage, the Treehouse, the Interactive Water Feature, trash receptacles, benches, lighting, restrooms, etc. Site furnishings require regular cleaning, wiping down, routine inspections for damage or loose connections, repainting, and repair as necessary. Graffiti must be removed within 48 hours of reporting. Quick removal of graffiti is easier and limiting absorption reducing the chance of lasting "shadowing." Failure to remove graffiti can "attract" additional graffiti - as graffiti often begets more graffiti.

3.4.1 TUDOR COTTAGE

The Tudor Cottage will be available for use as a small, climate-controlled community meeting and event space. Maintenance will include cleaning after each event, as well as periodic inspection of A/V, HVAC, and structural systems.

3.4.2 TREEHOUSE

The Treehouse requires daily maintenance to open and close the entry gate to allow access to the interior only during the park's operating hours. Daily visual inspections of the netting system will be performed. Signage at the feature will note prohibition of climbing the interior and exterior skin of the structure; onsite staff will monitor daily and address violations. Periodic structural inspection will occur at least quarterly.

3.4.3 TRASH/RECYCLING/COMPOST RECEPTACLES

The Park will offer 2-stream trash and recycling stations. These stations will require frequent emptying, on average 1x/day and more frequently during times of heavy uses, such as weekends in late spring and early fall. These stations will require frequent and thorough cleaning, especially in areas where food and drinks are expected to be consumed, such as the Tudor Cottage. If not cleaned frequently, they will attract pests and vermin. ***Partitioned responsibilities: PARD will continue to provide solid waste contract and will add Park recycling contract. PPC will provide all labor to get trash and recycling from bins to the dumpsters.***

3.4.4 DRINKING FOUNTAIN

The drinking fountain requires regular cleaning. Staff should check for water flow, remove any debris that clogs drains, and check for damage. These features need inspection and routine maintenance, which includes descaling, adjusting valve taps, and checking for leaks. Drinking fountain will be winterized in late fall with a spring turn-on.

3.4.5 LIGHTING

There will be several different light types for the Park. Most lights will only require routine maintenance unless damaged or vandalized. Taller mast lights located throughout the Park may need a boom truck for repairs and bulb replacement, which may be a challenge depending on location and vehicle accessibility.
Frequency of bulb replacement will depend on bulb type. Maintenance includes scheduled inspections with subsequent repairs.

3.4.6 FENCING, RAILINGS, AND WALLS

Fencing, railings, and walls are used to either limit foot traffic or prevent access. They are relatively low maintenance, but regular inspection and as needed repair can extend their longevity. Inspection may include checking for damage, loose connections, broken pieces, shifted limestone (walls), and evidence of trespassing/ vandalism. This should be done monthly to prevent undiscovered damage resulting in major repair and replacement. Staff should incorporate routine cleaning schedule to wipe down the hand rails on a weekly
basis, and include quick visual inspection during routine maintenance.

Several site features including the handrails, guardrails, steel posts/pipes, and steel plate gate at the dumpster enclosure use pre-weathered raw steel that is coated with boiled linseed oil. The boiled linseed oil is used as a primer to protect the finish, but the oil will degrade over time (especially when exposed to the sun) and will require reapplication. Only a very thin layer of linseed oil is needed to completely coat the steel; it can get "gloopy" and gummy if a thick application is used. Wipe the recoated surface with a lint-free cloth to ensure the linseed oil is not applied excessively.

3.4.7 PLAY FEATURES

There will be a variety of play features in the Park. Play features include both stationary and interactive equipment. Play features require weekly visual and monthly mechanical inspections to ensure there is no damage to any components. All connections need to be checked to ensure they are tight with no protruding bolts. Clean play features as needed. Perform a thorough inspection and maintenance twice a year. A certified play equipment inspector is needed to perform inspections and make necessary repairs. Throughout the year, inspect and evaluate all lumber components of the play features for any pieces that may need replacement due to rot or damage. Also inspect for unwanted animals and pests, such as wasps, rodents, and birds. Refer to Section 3.2.6 for maintenance of the EWF surface.

Keep a record of all inspections and repairs. Any unique parts or paints should be kept as attic stock to make repairs as soon as possible to avoid shutting down part of the playground for an extended period of time.

3.4.8 EXERCISE EQUIPMENT

The exercise equipment will be low maintenance. Wipe down equipment weekly and check for any damage or loose connections. Repair as needed.

3.4.9 INTERACTIVE WATER FEATURE

The water feature installed will consist of a field of 24 column jets and a "flooded deck" effect which flows from a stone seat wall to a stone-covered drain field that drains into a reservoir. The water feature is expected to operate from mid-May through mid-September. The flooded deck operates at a constant flow rate while the jets have variable heights in groups of eight via motorized valves. The jet "programming" will be controlled using a programmable logic controller and timing for the hours of operation will be adjustable from a color touch screen operator interface on the water feature control panel.

Maintenance of water features is intensive, with varying skills required. PPC will be responsible for obtaining annual permits from the Austin Health Department and chemical storage permits from the Austin Fire Department, and displaying permits onsite. PPC will ensure that the water quality meets safe water standards regulated by the Austin Health Department and Texas Title 25 code. The water feature contractor (GPSI) is being engaged to perform the Title 25 work, including daily chemical adjustments and record keeping. These daily maintenance logs will be maintained on site and available for City of Austin and PARD inspectors.

In the event of any occurrence that could impact public safety, PPC will be responsible for shutting down the system and barricading the area until the safety issue has been resolved. PPC is contracting with GPSI for any needed repairs, including after hours and/or emergency repairs.

GPSI will submit a maintenance manual and train maintenance staff as part of the system turnover; some of the expected tasks are listed below.

Daily: Test the water quality and visually inspect the filter system operation and pump strainer basket. Check the control panel for alarms. Inspect the vertical jets for clogging and damage remove debris from the drainfield. Check chemical tank levels and replenish as required.
Look for leaks in the equipment room.

Biweekly (2weeks): Replace and recharge Defender media as differential pressure rises above maximum allowed. Clean Perlite collection screen. Confirm operation of both sump pumps. Confirm operation of high-water switch.

Monthly: Drain and clean the reservoir.

End of Season: The water feature will need to be winterized at the end of the operating season in accordance with the manufacturer's guidelines. The Defender filter will be drained, and the media removed. All lines will be drained. The reservoir in this feature does not have an overflow or drain as state code requires an airgap for overflow and a sanitary level is above the bottom of the reservoir so gravity draining is not possible. The suction pipe to the equipment vault

has a secondary pipe connected to a valve in the equipment room sump allowing the reservoir to drain. The sump pumps will pump the water to the airgap receiver.

Spring Startup: Prior to spring start-up, the paved surfaces should be power washed to remove any biological growth or accumulated debris. The feature will be restarted in late March to early April. The reservoir and water feature surface must be thoroughly cleaned. The Defender filter must be recharge with media and restarted. The chemical system must be restarted. Replace UV bulbs and chemical controller probes.

Clean and check valve and pumps; clean and inspect strainer basket. Verify operation of panel controls, makeup water system, and inspect and verify operation of anemometer.

3.4.10 SEATING

There are several types of seating throughout the Park. Maintenance staff will need to check for damage and graffiti during their daily routine. Graffiti will need to be removed within 48 hours. Once a month, a thorough inspection is needed to check on seating connections and for loose or broken pieces. Repair and replacement will be done as needed. Some spot power washing may be needed in areas close to where food and beverages are consumed.

3.4.11 RESTROOMS

There are 3 public restroom units in the new facility building, including a men's, a women's, and a family restroom. These restrooms will meet Americans with Disabilities Act (ADA) accessibility standards. The conditioned restrooms will not need to be winterized and shut down. All restroom facilities will need regular cleaning and restocking, periodic repairs, and graffiti removal. The recommended cleaning frequency will vary with use and operating times.

3.4.12 IRRIGATION

Irrigation is essential for the overall establishment of landscapes. A mix of pop-up spray heads, rotors, and inline drip system will be used for lawn areas and gardens. Tree bubblers will be used for tree plantings.

The automatic irrigation system will not require extensive daily management; however, individual components will require regular monitoring and inspection to ensure all spray heads and drip components function properly. Controllers need to be checked for proper scheduling and lines require regular inspection to find and repair leaks. The irrigation system requires daily monitoring, some of which can be done remotely. Additionally, the irrigation schedule will need to be seasonally adjusted to meet water needs.

Other routine maintenance includes inspection for leaks or breaks; checking pop-up spray and rotor heads for damage and proper retraction; inspection of the weather station/rain gauge; visually checking all surface equipment; repairing damaged components; and seasonal start-up/shut down. Inspect flow meters and pressure gauges daily to ensure the system is working properly.

A low-pressure reading will indicate a leak in the system (e.g., leaking components or a broken pipe). A difference in pressure between individual spray heads may mean the system is not back flushing properly and requires a clean- out. Even minor irrigation failures can result in the loss of plant material, especially for large caliper transplanted trees.

Inline drip irrigation systems have the tendency to "walk up" to the surface from the vibration of water. When the lines are exposed to the surface, rodents may damage them looking for water. Pressure loss in the system is likely a sign for damaged line; repair and replace as needed.

Flush and drain the irrigation system (except for the main distribution line) at the end of the growing season to prevent any winter freeze damage. The system lateral lines will have to be fully drained by pressurizing the lines to ensure no water remains in the system. In the spring, once the risk of freezing has passed, the entire system may be recharged, and all lines tested for adequate pressure.

Most irrigation systems have a life span of approximately 10-15 years due to material breakdown, damage from

maintenance equipment, damage from park users, damage from freeze-thaw cycles, etc. Repair and replacement for 5-10% of the components may need to be done on an annual basis. An annual 7% replacement need is assumed, the work may be done twice a year or spread out more frequently as needed.

3.5 SITE CARE AND GENERAL PRACTICES

3.5.1 WASTE MANAGEMENT

Careful thoughts for a sound waste management plan is important for the management of any public park. As a SITES designated park, waste collected on site will require proper disposal to reduce the amount of waste that ends up in the waste disposal stream.

3.5.1.1 Trash and Recycling

In accordance with SITES credit requirement P8.2, the Park will offer 2-stream trash and recycling stations for park users. PPC Staff is expected to collect from the stations at least daily from April to October. Frequency may be reduced during winter months when use is lower.

Receptacles are to be emptied, and collected recyclable materials, along with landfill materials, are to be placed into their respective dumpsters located in the parking lot on Kingsbury Street. ***Partitioned responsibilities: PARD will continue to provide solid waste contract and will add Park recycling contract. PPC will provide all labor to get trash and recycling from bins to the dumpsters.***

3.5.1.2 Organic Matter/Composting Management of organic matter will depend on the location. For example, some organic material from woodland areas can be left on site unless it poses a safety hazard. In some difficult-to-access areas, removing large debris will require equipment that may damage landscapes. Leaving woody debris in-situ will provide nutrients, wildlife habitat, landscape interest, and provide educational opportunities. Using fallen trees for public education allows visitors to understand the more naturalistic/hands-off management approach taken for these landscapes. Removal of organic materials from the woodland restoration planting areas is only recommended when it poses a public safety hazard (e.g., branches on the verge of falling over or fallen onto trails), is diseased, or if it is invasive species.

In accordance with SITES requirement C8.3, collected organic material should be composted, except for diseased plants. PPC is working to develop an on-site green waste composting program.

3.5.1.3 Disposal Of Diseased Plants

Diseased shrubs and other vegetation must be completely removed, including roots and surrounding soil. Diseased trees need to be closely monitored but not immediately removed, as many trees can recover over time. An ISA Certified Arborist will evaluate diseased trees and determine how to proceed. Proper practices for diseased plant removal and disposal include:

- Do not use/move contaminated soil to other areas. Watch for soil clinging to shovels, boots, stakes, etc.
- Bag and remove soil that surrounds diseased plants.
- Avoid planting the same plant or related plants in contaminated areas unless the soil is treated first or completely replaced with uncontaminated soil. It can be difficult to completely eliminate disease organisms from soil.
- Bag and dispose of diseased plants, branches, twigs, chips, shavings, root pieces, leaves, flowers, and other plant debris (infected plant refuse) with collected trash; do not compost or recycle these materials as disease-causing organisms may survive composting.
- Remove diseased debris, such as leaves, flowers, or tender shoots as soon as they are noticed. Rake up and destroy diseased debris. Never remove debris in wet weather.

3.5.2 INVASIVE SPECIES MANAGEMENT

The plantings selected for the Park are native or adapted species. Maintenance staff should be trained to differentiate between these intended species and invasives. Monitoring invasive species will be done regularly as part of routine

maintenance. Record and treat/remove invasive species as needed.

3.5.3 HERBICIDE AND PESTICIDE APPLICATIONS As a general rule of thumb, conventional herbicide and pesticide use is generally not recommended for the Park, but they may be a potential option in situations where other methods have failed and must be used selectively. Conventional use should be the last resort. Proper application will ensure there is no residue that can affect adjacent landscapes and sensitive areas (such as any waterways).

See City of Austin's Integrated Pest Management Plan. PPC will follow the City's Integrated Pest Management Plan, plus adhere to additional requirements imposed by SITES designation C8.4 banning the use of all "weed & feed" fertilizers, and requiring that all fertilizer concentrations and frequencies be based on soils test results.

https://www.austintexas.gov/sites/default/files/files/ Watershed/invasive/COA-ISMP-Final-7-11-12.pdf

3.5.3.1 Application Times

Restricted Use Herbicides, Pesticides, and Fungicides will be applied by licensed applicator. All applications shall adhere to the Integrated Pest Management of the Parks and Recreation Department. All applications or registered use chemicals will be applied adhering to the label specifications of each product. Product labels include all safety measure, rates, environmental conditions, and re-entry times for public use. Products and applications not mentioned within the IPM plan must be approved by the Parks and Recreation Department.

3.5.3.2 Public Safety

Public safety is the highest priority. Signage informing users of any herbicide or pesticide application should be posted on bulletin boards, the website, and other social media platforms forty-eight hours in advance of an application. Additionally, small warning flags or fences should be used to keep visitors off the affected areas after applications adhering to each product label.

3.5.4 SOILS STEWARDSHIP

Soils are a critical component in the health of a landscape. Soils contain vital nutrients, impact water infiltration and run-off, and are home to numerous beneficial organisms and plant seeds. Ensuring healthy soils is an important aspect of maintaining healthy vegetation. *Refer to "Repairing Environmental Degradation - Soil Degradation" in Part 3 of Kingsbury Commons Natural Area Management Guidelines for further recommendations.'*

3.5.4.1 Mulch, Organic Fertilizers, Compost, and Soil Amendments

Where possible, the use of mulch, generated from on- site non-invasive organic material, is preferred over other materials identified in this section. *Refer to the Kingsbury Commons Natural Area Management Guidelines for further recommendations.'*

Organic fertilizers are derived from animal matter, waste, manure, and vegetable matter. Organic fertilizers referenced in this report refer to nutrients that are usually surface applied to feed plants over an extended period of time. Proper usage of organic fertilizers can be beneficial, with limited environmental impact. Organic fertilizers tend to have a strong odor, which can be unpleasant to park users. Organic fertilizers are best applied during the early morning to avoid high park use, wind, rain, and high temperatures, and allow odors to dissipate. Application of conventional fertilizers is discouraged.

Soil amendments are additives used to improve soil quality, soil profile, permeability/drainage, moisture retention, and tilth. Examples of soil amendments include bone meal, blood meal, manure, feather meal, fish emulsion, and lime. The additions of soil amendments can increase soil volume.

Application of organic fertilizers and soil amendments will vary depending on the landscape area and soil test results. Organic fertilizers cannot be used in any water quality areas per City regulations.

3.5.5 TREE CRITICAL ROOT ZONES

Tree critical root zones must be adequately protected during construction. This includes installing and maintaining tree protection fencing around root zones; not operating or storing equipment, vehicles, materials, or debris within the dripline; and placing protective mats or plywood sheets to distribute the weight of a vehicle.

Post-construction, critical root zones must continue to be managed to protect their integrity. The general rule of thumb for trees (whether existing or planted) is deterioration will become visible at a rate of one year per one inch of diameter (measured at breast height). Because the critical root zones are in established woodlands, the trees are generally larger and visible stress or die back may not occur for five to ten years or more after construction. Post-construction practices may include:

- Monitoring for the health of the woodlands and the larger significant trees, soil conditions (moisture level and compaction), diseases, and invasive species.
- Any work done under the canopy of these trees must be performed with equipment that can be carried in

and out of the dripline on foot to minimize soil compaction.

3.5.6 TOOL SANITATION

Tools used for removal of dead or diseased plants can spread disease to other healthy plants. Use the following practices to eliminate the spread of disease from tools:

- After plant removal, sterilize tools used for removal.
- Clean boots and tools that have contacted the soil.
- Wash tools with detergent; this not only physically removes diseases/viruses from tools but can neutralize any remaining viruses.
- Sanitize tools by dipping them in a diluted bleach solution (3 cups of bleach to 1 gallon of water) or liquid Lysol diluted to 20 percent.
- Rinse tools thoroughly and oil to prevent rusting.
- If hands, gloves, or boots come in contact with diseased plants, wash before using them again.

Mower blades should be sharpened every third or fourth cut to ensure clean cut; dull mower blades will rip and shred glass blades, making them more susceptible to diseases. If a mower is shared between job sites, the mowing deck should be cleaned between sites to avoid cross contamination.

3.5.7 OTHER SITE MANAGEMENT CONCERNS Some proposed landscapes, such as the woodlands and areas near waterways, may be habitats for small animals and migratory birds. It is critical to monitor these areas for habitat use and to ensure they are healthy, and to record any species that may be nesting. If threatened or endangered species are present, maintenance practices may need to be altered to limit work on species and their habitats (e.g., timing maintenance activities when nesting
birds are not present). *Refer to "Ecological Systems - Birds, Wildlife, and Habitat" in Part 2 of Kingsbury Commons Natural Area Management Guidelines for a list of wildlife species and associated habitats.'*

Maintenance work should be performed, ideally, when there are fewer visitors, to create the best user experience possible. For example, low impact maintenance tasks, such as litter removal, may take place throughout the day. However, disruptive maintenance tasks, such as power washing, can be performed during early morning or off-hours when there are fewer park visitors (if possible). Similarly, any maintenance work that will affect the use of, or limit access to park features, such as lawn renovation or trail repairs, will be announced prior to scheduled work whenever possible.

3.6 RECORD KEEPING

Proper and consistent record-keeping will help in Monitoring and providing direction for best maintenance practices. The information will assist in determining future costs, resources, maintenance challenges, and life cycle costs, identifying long-term trends, and identifying potential problematic areas (e.g. areas prone to erosion, or wear and tear). Examples of records that should be kept are described below. *Refer to "Documentation and Monitoring" in Part 4 of Kingsbury Commons Natural Area Management Guidelines for addition guidance on early detection monitoring, land management task monitoring, and tracking biodiversity.*

3.6.1 PESTICIDES AND HERBICIDES LOG

Maintain an activity log for the following:

1. All procurement/purchases of pesticides and herbicides.
    A. Applications of the pesticides and herbicides
        i. Date, type of application, interval, amount used, where the materials were applied.
    B. Application to the City.
    C. Amount of material in stock.
2. The following records of pesticide use shall be maintained for a period of two years:
    A. Maintain records of each pesticide application regardless of the use classification of the pesticide applied.
3. The record of each pesticide application shall be kept current and maintained at the applicator's principal place of business as designated on the applicator's application/renewal for a pesticide applicator's license.

3.6.2 PLANTINGS

- Keep original planting plan for reference.
- Keep track of areas that require replanting.
- Photo documentation monthly during first year after planting; reduce to quarterly for all subsequent years to note any patterns and track growth.

Refer to "Appendix 2" in the Kingsbury Commons Natural Area Management Guidelines for established photo point locations.

4.0 STAFFING NEEDS

4.1 MAINTENANCE ESTIMATES

4.1.1 METHODOLOGY

The estimated hours for annual maintenance have been determined by using standard practices and time standards, such as the number of times turf is typically mowed in Austin and maintenance principles noted in Chapter 2. The estimated hours are used to calculate an annual maintenance cost.

The tasks hour sheets (see the end of report) in this report list the tasks necessary to maintain the Park and estimate the number of hours that will be needed for maintenance. The task hours sheets identify the tasks, the estimated time (hours) and frequency for each maintenance task.

4.1.2 HOURS

Approximately 7,985 hours are needed annually to maintain the Park during the establishment period, which will decrease to 7,485 hours during the post- establishment period (see Figure 2). The tasks will be done by a combination of in-house PPC staff (Conservation Coordinator, Park Operations Manager, and Maintenance Worker), plus contracted services (water feature, security, mowing, irrigation, ecology, pest control). Trash and recycling contract services are assumed to be provided by the City of Austin.

4.1.3 BUDGET

An estimated maintenance budget of $392,147 is needed during the establishment period (see Figure 3). As the plantings become established, their maintenance needs will reduce. However, as elements and infrastructure age, their maintenance needs will increase. Thus, while the cost for horticultural maintenance may decrease over time, the cost for trades services will increase.
It is estimated that maintenance costs during post- establishment period will be $388,355. (Refer to the end of report for a detailed breakdown of budget costs.)

The hourly rates used to calculate the budget are based on City staff with comparable skill set or titles.

	Qty	Unit	Hours/Acre	Estab Hours	Hours/Acre	Post Estab Hours
Concrete T Typical	*0.3*	*Acre*	*595*	317	*595*	317
Decomposed Granite (City) T Stabilized	*0.6*	*Acre*	*375*	215	*375*	215
Mulch Trail	*0.2*	*Acre*	*274*	88	*274*	88
Athletic Surfaces T Basketball Court	*0.2*	*Acre*	*298*	31	*298*	31
Bocce/Petanque Court	*0.1*	*Acre*	*3439*	62	*3439*	62
Engineered Wood Fiber	*0.4*	*Acre*	*561*	130	*561*	130
Hardscapes Subtotal				**842**		**842**
Lawn	*2.8*	*Acre*	*419*	908	*345*	748
Display Gardens Planting	*0.6*	*Acre*	*776*	728	*728*	683
Woodland and Understory Planting	*0.2*	*Acre*	*467*	314	*392*	264
Hillside Woodland Restoration	*6*	*Acre*	*188*	844	*166*	744
Riparian Woodlands	*0.4*	*Acre*	*448*	269	*282*	169
Bioswale/Rain Garden	*0.2*	*Acre*	*464*	53	*204*	23
Vines Edge/Green Walls	*260*	*LF*	*N/A*	224	*N/A*	209
Landscapes Subtotal				**3,340**		**2,840**
Site Features and Furnishing				**3,803**		**3,803**
Total				**7,985**		**7,485**

Figure 2. *Kingsbury Commons Estimated Annual Maintenance Hours*

4.2 MAINTENANCE EQUIPMENT

The importance of having the correct equipment to perform maintenance tasks cannot be overstated. Identifying useful new equipment, ensuring that the optimal equipment mix is maintained, and developing an equipment replacement schedule are important issues for park maintenance. Even in cases of a well-equipped fleet with well-maintained equipment, there is the need to continually plan for replacements and experiment with new, more effective vehicles and equipment.

Small electric or quiet running gas-powered utility vehicles should be considered for operational effectiveness. Small vehicles are more appropriate for the Park for daily tasks, rather than full-size vehicles for reasons of maneuverability, economy, and ease of maintenance; they are also more user-friendly. Larger vehicles and special equipment may be needed for some specialized work.

Note: The cost estimates below do not include provision for equipment, except for $15,000 in rentals.

4.3 MAINTENANCE FACILITY

A small storage unit is located within proposed Building B, adjacent to the splash pad equipment room. This area will be used by staff for equipment, tool, and material storage.

An additional storage area or cargo unit is desired on site to house PPC's Cushman utility vehicle.

	Establishment Period	Post Establishment Period
Maintenance Personnel	$217,907	$205,065
Supplemental Services	$12,500	$27,500
Maintenance Personnel	$230,407	$232,565
Material Expenses	$161,740	$155,790
Total Maintenance Costs	**$392,147**	**$388,355**

Park Security & Monitoring		**$144,360**

Figure 3. *Kingsbury Commons Estimated Annual Maintenance Costs*

4.4 OPERATING MODEL FOR PPC & CITY

Management – the day-to-day delivery of services – will ultimately determine how well or how poorly the Park fares over the long-term. The vision for the improved Park is that it be a well-maintained natural park landscape. New plantings, trees, lawns, play features, improved gathering spaces, and water features alone will not guarantee a successful park. Quality maintenance, programs, security, and professional management must likewise be addressed to ensure the Park thrives and meets the design goals as well as develops a constituency within the City of both public and private sectors for its long-term care and support.

PPC will be responsible for the future management of the improved areas of the Park. It is assumed the maintenance will be a shared responsibility between PPC and the City.

City responsibilities are assumed to include:

- Dumpster contract for trash/solid waste,
- Dumpster contract for recycling,
- Maintenance of decomposed granite trails, including rain event patching.

In accordance with SITES requirement C8.6 to use renewal sources for electricity, the park must continue to participate in Austin Energy's Green Choice Program.

It will be critical for PPC to re-evaluate the maintenance practices on a frequent basis (such as annually, or biannually) and adjust them to suit the needs of the Park. Scheduled monthly meeting between grounds staff and supervisory/administrative staff will help facilitate open communication.

5.0 GENERAL OPERATIONS

5.1 EMERGENCY CLOSURES

Either PPC or City shall have the right to close Kingsbury Commons or park improvements to the public if either party determines that a condition of the park or park improvements poses an immediate, serious threat to the public health or safety. In such circumstance, the closing party will provide the other party with notice of, and the reason for, the closure as soon as reasonably practicable, but is not required to provide notice prior to closure.

PPC will notify the public of the closure via signage, website posting, social media, and media advisory.

5.2 NON-EMERGENCY CLOSURES

Should park improvements require closure in order for PPC to perform repair and maintenance of any park improvement, PPC will notify the public of the closure via signage and website posting.

5.3 PUBLIC REPORTING OF OPERATING OR MAINTENANCE ISSUES

PPC will display signage providing contact information for the public to report any operating or maintenance issues to the Conservancy.

5.4 INCIDENT LOGS & REPORTS

PPC will maintain daily logs of any injury, complaint, or reported violation of the law within the Park Improvement Area, and will maintain the daily logs for review by the City. If the City determines an injury, complaint, or violation to be material in nature, PPC will submit an incident report to the City.

5.5 PARK RULES

PPC will comply with Chapter 8-1 of the Austin City Code, Parks Administration. Additionally, features and amenities in the Park will be closed outside the normal hours of operation of the Park. This provision is specifically intended to provide for the overnight closure of restroom facilities between the hours of 10 p.m. and 6 a.m.

REFERENCE MATERIALS

EXPLANATION OF THE MAINTENANCE TASKS AND HOURS SHEET IS AS FOLLOWS:

TASK – Maintenance task
QTY – Total quantity of a task that needs to be done
UNIT – Unit of measurement
UNIT (MIN) – Time standard to complete one unit of the task in minutes
ONCE (MIN) – Task quantity x time standard
ONCE (HOURS) – Time in minutes converted to hours
ANNUAL FREQUENCY – Number of times task is done annually
TOTAL HOURS - Annual frequency x time in hours for doing it once

sm = square meter
msf = 1,000 square feet
mlf = 1,000 linear foot

The estimated annual hours (TOTAL HOURS) for maintenance of specific task (TASK) was calculated by multiplying the task quantity (QTY) by the time standard to complete one unit of the task (UNIT MIN) which is then divided by 60 to convert minutes to hours. Hours are then multiplied by the total number of times the task is estimated to be done annually (FREQ) to arrive at the estimated number of hours needed annually to complete the task.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Concrete - Typical							**317**	Includes: Pedestrian, Vehicular, and Exposed Aggregate Concrete
Litter removal	5	msf	3	14	0	365	85	20% of area, done daily
Blow/sweep debris	6	msf	10	58	1	104	101	25% of area, 2x per week with hand or backpack blower
Clean surface	7	msf	30	209	3	24	84	30% of area, 1x/month for half the year, and 3x/month for the other half; clean stained/dirty areas manually or spot clean with power washer using a fan-tipped nozzle when needed. Focus power washing effort in waterplay area, frequency may need to increase to wash off biological growth and preventing a slippery surface
Debris removal from drain inlets		allow					12	Done every month to remove debris and sediment, assumes 1 hour each time
Paving repair		allow					36	Repair pavement markings, cracks, spalling, settling, etc.
Decomposed Granite, Stabilized (City)							**215**	
Litter removal	4	msf	3	11	0	260	49	15% of area, average 5x/week; also includes visual inspection of edging; report and repair accordingly
Level surface	25	msf	20	500	8	12	100	100% of area, 1x/month; evenly distribute the loose materials across the surface
Stabilized stone dust renovation & repairs	3	msf	220	550	9	4	37	10% of stone dust surface; may include filling, leveling, and restabilizing; may require bringing in new material
Edging		allow					30	Maintenance and repair as needed
Mulch Trail							**88**	
Litter removal	1	msf	3	4	0	156	11	10% of area, average 3x/week; also includes visual inspection of edging; report and repair accordingly
Level surface	7	msf	15	105	2	12	21	50% of area, monthly; evenly distribute the loose material across the surface
Replenish mulch materials	4	msf	160	560	9	6	56	25% of area; may require bringing in new material, done 2x/year

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Athletic Surfaces -- Basketball Court							**31**	
Remove litter	1	msf	3	2	0.0	260	9	15%; done 5x/ week
Blow debris with backpack blower	2	msf	5	9	0.2	52	8	40%; done 1x/ week
Power wash	1	msf	30	34	0.6	18	10	25%; 1x/month for 6 months, 2x/month for 6 months
Maintenance and repair	1	msf	360	243	4.1	1	4	15%; check and repair any pavement paint, cracks or damage to court
Bocce/Petanque Court							62	
Rake leaves & debris	1	each	5	5	0.1	156	13	Entire surface; as needed, averages 3x/week
Rake stone surface	1	each	5	5	0.1	365	30	Entire surface; 1x/ day, weather permitting
Set out and retrieve bocce balls	1	each	2	2	0.0	365	12	Daily
Repair/replenish stone surface	1	each	180	180	3.0	2	6	May need to bring in new material for top-off
Engineered Wood Fiber							**130**	
Litter removal	2	msf	2	3	0	320	16	15% of area, daily in peak season (9 months), 3x/week in off season (3 months)
Deep cleaning	1	msf	10	10	0	52	9	10% of area, done weekly, dig few inches down to buried litter; focus primarily in areas around seating, trash stations, etc.
Refill and regrade	2	msf	90	181	3	12	36	20% of area; monthly refilling (bring in new materials) and regrading as needed to ensure proper depth of EWF
Rake/ level	1	msf	10	10	0	320	54	10% of area; inspect, rake and level surface; daily during peak season, 3x/week in off season
Weeding		allow					5	As needed
Edging maintenance & repair		allow					10	2x annually for inspection, maintenance & repairs
Hardscape Maintenance Subtotal							**842**	

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Lawns							**748**	**NonTevent areas**
							908	*Establishment Period Subtotal*
Remove litter	9	msf	3	28	0	365	172	10% of area; daily
Leaf removal	24	msf	20	472	8	6	47	25% of turf area with leaf blower, push sweeper, or manual raking
Mow turf (open area)	71	msf	3	212	4	46	163	75% of open turf with rideTon mower; mow once every 7T10 days from March T May and September T October, once every 4T7 days from June T August, and once every 14 days from November T February (or as needed)
Mow walking/trim	24	msf	10	236	4	46	181	25% of open turf, with walking mower and string trimmer
Soil Test/Evaluation							10	Done prior to fertilization
Turf fertilizer	94	msf	10	944	16	3	47	100% of area; organic fertilizer or amendments
Weed & pest control T spot treat	9	msf	50	472	8	8	63	10% of turf, 1x/month during the growing season; spot treat application
Top dress soil and/or mulch	47	msf	25	1180	20	1	20	50% of turf area
Seasonal turf renovation	47	msf	45	2124	35	1	35	50% of turf area; dethatch, aerate (manual), reTsodding (small area) or reseeding
Temporary fencing	7	mlf	15	98	2	6	10	Install/maintain temporary fencing, assumes 3,000 lf per acre
Establishment tasks		allow					160	Applied to establishment years; includes erosion control, additional temporary fencing, spot watering and weed control

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Display Garden Planting							**683**	
							728	*Establishment Period Subtotal*
Litter removal	6	msf	5	31	1	260	133	15% of planting areas, 5x/week
Fall leaf removal	12	msf	25	306	5	6	31	30% of planting areas
Weeding (by hand)	10	msf	30	306	5	30	153	25% of planting areas, 1x/week, AprilTOctober
Seasonal prep	31	msf	120	3676	61	2	123	75% of area, spring cleanTup and winter prep
Planting areas maintenance	16	msf	75	1225	20	7	143	40% of planting areas, 1x/month, AprilTOctober; deadheading, trimming, minor cutbacks, pruning, inspection for invasive species, fertilizing, etc.
Annual soils test evaluation		allow					1	Done prior to fertilizing to determine need
Monitoring and evaluation		allow					15	Visual inspection and monitoring of plant health, soil condition (check for compaction)
Spot watering	8	msf	30	245	4	8	33	20% of planting areas, 1x/month spring through fall to supplement irrigation when necessary
Tree maintenance	10	each	20	200	3.3	4	13	Quantity is to be determined, currently a placeholder; tasks include: pruning and clearing, done quarterly
Pest control	8	msf	30	245	4	4	16	20% of planting areas
Plant replacement	6	msf	90	551	9	1	9	15% of planting areas, spring or fall
Temporary fencing	1	mlf	15	15	0	12	3	Install/maintain temporary fencing; assume 1,000 lf per acre
Composting of landscape debris		allow					10	Collect and deposit compostable material in compost area
Establishment tasks		allow					45	Tasks for the first 4 years of establishment, including additional spot watering, temporary fencing, plant replacement, & weed control.

TASK	(Y	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Woodland and Understory Planting							**264**	
							314	*Establishment Period Subtotal*
Remove litter/debris	4	msf	8	35	0.6	156	91	15% of planting areas, 3x/week
Mowing strips	7	msf	10	73	1	26	32	10% of grounds, or approximately 5' into the planting areas from the edge of the trails. Done with a walk behind mower. Done approximately once every 2 weeks.
Understory management	7	msf	15	110	2	20	37	25% of planting areas; biweekly from AprilTOctober (30 weeks), monthly from NovemberTMarch, tasks includes trimming, deadheading, inspection and monitoring, etc. Maintenance will focus on understory and herbaceous planting.
Seasonal cleanup	9	msf	120	1054	18	2	35	30% of planting areas; done in spring and fall, bed clean up include debris removal, pruning/woody species correction, etc.
Tree canopy thinning and hazardous tree management		allow					10	Selective canopy opening and tree removal
Tree maintenance	12	each	15	180	3	2	6	Assume 50 trees/acre, 10% of total trees; fertilizing, pruning and small tree replacement
Replanting		allow					10	Replanting of understory
Temporary Fence	1	mlf	15	15	0	12	3	Install/maintain temporary fencing, assume 1,000 lf/acre
Irrigation maintenance		allow					30	Temporary irrigation or hand spot watering
Signage		allow					5	Clean, maintain, install, and replace interpretive/information panels, plant labels, etc.
Composting of landscape debris		allow					5	Collect and deposit compostable material in compost area
Establishment Tasks		allow					50	Applied up to a period of 5T10 years of establishment, hours are assumed to be average. Tasks include monitoring and evaluation, invasive treatment and removal, planting and watering.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Hillside Woodland Restoration							**744**	
							844	*Establishment Period Subtotal*
Remove litter/debris	29	msf	8	234	3.9	104	406	15% of planting areas, 2x/week; focuses primarily along the pathways or edges
Natural resource/understory management	49	msf	15	732	12	12	146	Invasive species removal, trimming, pruning etc., assume 25% of a planting area. Some time allocated for biennial/triennial brush clearing. Done monthly.
Tree canopy thinning and hazardous tree management		allow					25	Maintenance will focus on understory and herbaceous planting. (2 gallon and 4" plants.) Selective canopy opening and tree removal
Tree maintenance	48	each	30	1,440	24	2	48	Assume 80 trees/acre, 10% of total trees; fertilizing, pruning and replacement
Replanting		allow					10	Replanting of woody species and understory where necessary due to possible new plant mortality (5 gallon specimen)
Temporary Fence	6	mlf	15	90	2	12	18	Install/maintain temporary fencing, assume 1,000 lf/acre
Irrigation maintenance		allow					40	Temporary irrigation or hand spot watering
Signage		allow					10	Clean, maintain, install, and replace interpretive/information panels, plant labels, etc.
Composting of landscape debris		allow					20	Collect and deposit compostable material in compost area
Seeding		allow					20	Seeding is done initially during restoration effort. Reseed during fall when plant establishment is less than desired. (See Hillside Woodland Restoration document for see list.)
Establishment Tasks		allow					100	Applied up to a period of 5T10 years of establishment, hours are assumed to be average. Tasks include monitoring and evaluation, invasive treatment and removal, planting and watering.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Riparian Woodlands							**169**	
							269	*Establishment Period Subtotal*
Remove litter/debris	4	msf	8	31	0.5	104	54	15% of planting areas, 2x/week; focuses primarily along the pathways or edges
Natural resource management	7	msf	15	98	2	12	20	Invasive species removal, trimming, pruning etc., assume 25% of a planting area. Some time allocated for biennial/triennial brush clearing. Done monthly. Maintenance will focus on understory and herbaceous planting.
Tree canopy thinning and hazardous tree management		allow					10	Selective canopy opening and tree removal
Tree maintenance	12	each	30	360	6	2	12	Assume 50 trees/acre, 10% of total trees; fertilizing, pruning and replacement
Replanting		allow					10	Replanting of woody species and understory
Temporary Fence	6	mlf	15	90	2	12	18	Install/maintain temporary fencing, assume 1,000 lf/acre
Irrigation maintenance		allow					25	Temporary irrigation or hand spot watering. If hand watering, done on a weekly basis until plants are established, which is approximately Year 3.
Signage		allow					5	Clean, maintain, install, and replace interpretive/information panels, plant labels, etc.
Composting of landscape debris		allow					10	Collect and deposit compostable material in compost area
Seeding		allow					5	Seeding is done initially during restoration effort. Reseed during fall when plant establishment is less than desired. (See Hillside Woodland Restoration document for see list.)
Establishment Tasks		allow					100	Applied up to a period of 5T10 years of establishment, hours are assumed to be average. Tasks include seeding in Year 2 in areas that were planted during construction, invasive species removal, monitoring, plant replacement/replanting, and watering.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Bioswale/Rain Garden							**23**	
							53	*Establishment Period Subtotal*
Litter removal	1	msf	5	3	0	52	2	10% of planting areas, 1x/week
Seasonal prep	1	msf	120	90	2	2	3	15% of area; bed cleanup (includes sediment and large debris removal), mulching, etc.
Monitoring and evaluation		allow					10	Visual inspection and monitoring of plant health, soil condition (check for compaction and sediment buildup)
Planting maintenance	1	msf	30	38	1	12	8	25% of planting areas, monthly; includes weeding, groundcover trimming
Spot watering	1	msf	10	8	0.1	6	1	15% of planting areas, only in extreme heat
Establishment tasks		allow					30	Tasks for the first 2 years of establishment, including additional spot watering, plant replacement, & weed control
Green Walls							**209**	**Plantings on structures around buildings**
							224	*Establishment Period Subtotal*
Litter removal	26	lf	1	26	0	52	23	10% of planting areas, 1x/week
Seasonal prep	65	lf	15	975	16	2	33	25% of area; deep pruning, bed cleanup, mulching, replanting if needed, soil testing, etc.
Vine training	65	lf	5	325	5	4	22	25% of planting areas, corrective training
Monitoring and evaluation		allow					10	Visual inspection and monitoring of plant health, soil condition (check for compaction)
Trimming	65	lf	10	650	11	6	65	25% of planting areas, light trimming
Planting maintenance	65	lf	6	390	7	7	46	25% of planting areas, 1x/month, AprilTOctober; includes weeding, soil compaction testing, limited LBA/compost application, groundcover trimming
Spot watering	39	lf	3	117	2	6	12	15% of planting areas, done as needed
Establishment tasks		allow					15	Tasks for the first 2 years of establishment, including additional spot watering, plant replacement, & weed control
Landscapes Maintenance Subtotal							**2,671**	**PostTEstablishment Period**
Landscapes Maintenance Subtotal							**3,071**	**Establishment Period**

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Site Features and Furnishing Maintenance								***All amenities are currently placeholder numbers***
Empty trash cans, recycling bins, and doggie bin	10	each	4	40	1	310	207	Daily from MarchTOctober (34 weeks), 4x/week NovemberTFebruary (18 weeks)
Clean/maintain trash cans and recycling bins, and doggie bin	10	each	15	150	3	42	105	100%; weekly from MarchTOctober, 2x/month NovemberTFebruary; includes cleaning, touchup of paint (if needed), inspection (check for damages, loose parts, etc.)
Event day trash cans and recycling bins	6	each	3	18	0.3	84	25	Assumes 12 events annually, time included putting out, emptying five times per event, and collecting (7x)
Refill doggie bin	2	each	5	10	0.2	156	26	Refill bin, done 3x/week
General event cleanup and maintenance	1	each	120	120	2	24	48	Assumes 12 events annually, additional cleanup as a result of users "over spilling" into other areas of the park, includes damage assessment and repair/replace as needed. (Allocate 2 hour before and after each event.)
Clean T site furnishings	10	each	10	100	2	38	63	20% weekly AprilTOct., 2x/month NovTMarch; includes bike racks, signage, benches, and other general site furnishings not otherwise listed
Water features seasonal prep		allow					65	Spring startup & winterization (assumes two days for startup and two days to shutdown, one plumber and one apprentice). Water features include play features and irrigation.
Light fixture lumen board replacement		allow					15	Replacements as needed
Light fixture repair & maintenance		allow					20	Routine maintenance as needed due to operations, vandalism, etc.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Site Features and Furnishing Maintenance								***All amenities are currently placeholder numbers***
Signage T cleaning & inspection		allow					15	Inspection with other maintenance tasks, cleaning every two months or as needed, i.e. graffiti removal
Clean walls & curbs		allow					30	25% of walls, 1x/month, AprilTOctober
Walls and curbs inspection and maintenance		allow					35	15% of walls, 1x/month, primarily visual inspection for look for any damage, and allow some time for minor repair and maintenance
Railing cleaning		allow					30	100% of rails, quick wipe down and visually inspect for any damages and graffiti; done weekly from MarchT October, biweekly from NovemberTFebruary
Railing inspection and maintenance		allow					40	15% of rails, 1x/month, primarily visual inspection for look for any damage, and allow some time for minor repair and maintenance. Time included for Boiled Linseed Oil reapplication and cleanup.
Drain cleaning		allow					12	1x/month, assumes 1 hour per month
Pest control		allow					50	Focus in areas where food may be present (pests and vermin)
Gum & graffiti removal		allow					50	As needed
Play feature visual inspection	10	each	3	30	1	183	92	Visual inspection on play pieces, incorporate the inspection into daily groundskeeping, look for obvious sign of damage, graffiti, vandalism, etc.
Play feature maintenance	10	each	45	450	8	12	90	Monthly maintenance and inspection, check for loose connection, damage, general checkup (includes basketball hoop and volleyball net)
Play feature inspection and repair	10	each	120	1200	20	2	40	2x/year, thorough inspection based on the manufacturer's specifications. Routine repair, part replacement etc. Done by a certified play equipment personnel. (includes basketball hoop and volleyball net)
Exercise equipment maintenance, inspection, and repair		allow					10	Time allowed for cleaning, repainting, inspection and repair as needed
Structure inspection and minor repair		allow					125	General inspections, includes time for minor repair (includes Treescape)

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Site Features and Furnishing Maintenance								***All amenities are currently placeholder numbers***
Water play features								
Daily Cleaning	1	each	60	60	1	210	210	Daily while operating (30 weeks), visual inspection, check for clogs around drains, remove any debris, check for damage and leaks, water testing, etc.
Biweekly Maintenance	1	each	480	480	8	15	120	Done biweekly (15 weeks), tasks include: replace and recharge Defeender media, clean perlite collection screen, confirm operation of both sump pumps and high water switch
Monthly Maintenance	1	each	480	480	8	7	56	Done monthly (7 months), tasks include: drain and clean the reservoir
Annual Maintenance	1	each	960	960	16	2	32	Done Tasks include: verify operation of all panel controls, replace any components as needed, power wash, etc. Includes time for winterization and spring startTup, and powerwash prior to spring startTup
Irrigation								Assumes only lawns and display garden areas will be irrigated
Irrigation T Monitoring/System Check	135	msf	5	676	11	26	293	BiTweekly; Monitor to ensure adequate coverage, damage, and functionality.
Irrigation T Component Maintenance & Repair	135	msf	200	27052	451	2	902	Repair above grade components (rotors, spray heads, drip tubing, bubblers) as needed; assume 7% replacement annually
Irrigation T System maintenance	135	msf	26	3517	59	2	117	System repair and clean out, winterization, spring startup. Note: System maintenance includes supply lines to all quick couplers,
Restroom cleaning	3	each	30	90	2	365	548	Daily
Restroom restocking	3	each	5	15	0	1114	279	2x/day for half the year, 4x/day for the other half; in addition to cleaning, staff will check to restock the restrooms, toiletries, quick mop down and wipe down
Restroom maintenance and repair	3	each	60	180	3	18	54	Assumes once per month, with higher frequency from April to October when usership is higher
Site Features and Furnishing Maintenance							**3,803**	

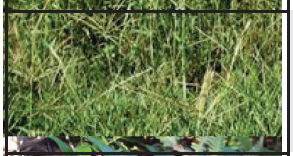
Operating Costs for Kingsbury Commons Austin, Texas	Establishment Period			Post-Establishment Period			Comments
	Hrs	$/hr	Cost	Hrs	$/hr	Cost	
Grounds Maintenance							
Maintenance Personnel							
Crew Leader	1,429	$22.00	$31,438	1,429	$22.00	$31,438	Repair and skilled tasks (20% hardscapes and Site Features maintenance) and some supervision (additional 500 hours)
Ecological Staff	501	$32.00	$16,030	426	$32.00	$13,630	Staff will provide care to the Woodland and Understory Planting, Hillside Woodland Restoration, and Riparian Woodlands (15% of Landscape maintenance)
Maintenance Staff	1,394	$18.00	$25,083	1,394	$18.00	$25,083	Basic maintenance, lawn care, minor horticultural care, litter removal, cleaning, trash removal, minor repairs, etc. (30% Hardscapes and Site Features maintenance)
Horticultural Staff	1,670	$19.00	$31,727	1,420	$19.00	$26,977	Horticultural care, such as garden areas, bioswale, etc. (50% of Landscape maintenance)
Unskilled/Semi-Skilled Staff	3,491	$13.50	$47,134	3,316	$13.50	$44,771	Provide basic care and cleaning (35% Landscape maintenance, and 50% of Hardscapes and Site Features maintenance)
Overtime			$10,000			$10,000	Allowance for overtime
Fringe			$56,494			$53,165	35% of total personnel cost, includes benefits and taxes
Subtotal Maintenance Personnel	***8,485***		***$217,907***	***7,985***		***$205,065***	
Supplemental Personnel							
Volunteers			$0			$0	When applicable
Arborist			$2,500			$2,500	Allowance
Contracted Trades Services			$10,000			$25,000	Allowance for trades services that cannot be done by Skilled Staff, Contracted Services are assumed at $75-100/hour
Subtotal Supplemental Personnel			***$12,500***			***$27,500***	
Subtotal Maintenance Personnel			**$230,407**	**7,985**		**$232,565**	

Operating Costs for Kingsbury Commons Austin, Texas	Establishment Period			Post-Establishment Period			Comments
	Hrs	$/hr	Cost	Hrs	$/hr	Cost	
Material and Other Expenses	**Qty**	**Unit Cost**	**Cost**	**Qty**	**Unit Cost**	**Cost**	
Pest control			$5,000			$5,000	Non-Thorticultural rodent/pest control
Understory planting			$5,000			$5,000	Allowance for woody shrubs and small trees replacement
Herbaceous planting			$1,500			$750	Allowance for 4" plants
Seeding materials			$1,000			$500	Allowance for seeding materials
Materials			$15,000			$15,000	Material purchase related to everyday maintenance: trash bags, doggie bags, gloves, small tools, hoses, playground rubberize mats, etc.
Toilet supplies			$6,800			$6,800	Commercial 9" 2ply TP @ $18 for 12/case (183 cases annually), commercial 800' PT @ $17 for 6/case (122 cases annually), commercial hand soap 1 gallon @ $15/gallon (92 gallons annually). Does not include supply costs needed to meet events needs.
Soil testing			$600			$400	Cost for soil tests, assumes $100 per test. 6 tests during establishment period, reduces to 4 tests during post-establishment period.
Mulch	250	$40	$10,000	250	$40	$10,000	Assumes about $40/CY, 250CY covers approximately 40,000SF at 2" depth. (Covers both Display Garden and Bioswale)
EWF cost	20	$30	$600	20	$30	$600	Materials only, routine top off (cost per cubic yard)
DG cost (City)	26	$240	$6,240	26	$240	$6,240	Routine top off as a result of rain/flood event (assumes 15%)
Waste hauling (City)			$6,000			$6,000	Services for waste removal, recycling, and composting (if applicable); assumes $500/month
Irrigation parts			$5,000			$7,500	Routine replacement parts, such as sprayheads (assumes larger and more expensive components need to replace in post-establishment years)
Water feature parts			$5,000			$7,500	Allowance
Uniforms & communication devices			$7,500			$2,500	All-weather gear, radios/ cellphones/ tablets, etc.
Equipment rental			$15,000			$20,000	Allowance for vehicle and equipment rental for special tasks, such as vacuum trucks, scissor lifts, etc.

Operating Costs for Kingsbury Commons Austin, Texas	Establishment Period			Post-Establishment Period			Comments
	Hrs	$/hr	Cost	Hrs	$/hr	Cost	
Utilities: Restroom			$2,500			$2,500	Annual allowance cost. Assumes 500,000 visitors annual, with 25% using the restrooms. Assumes approximately 3 gallons used per visit. 150,000 gallons are used. Water rate of $5.66/1,000 gallon is used for calculations.
Utilities: Irrigation			$47,500			$38,000	Annual allowance cost. Assumes nearly 6.7 million gallon is used annually. Water rate of $5.66/1,000 gallon is used. Irrigation cost is approximately $38,000 during post-establishment period, with an additional 25% increase during establishment period. ($47,500)
Utilities: Water Features			$500			$500	Annual allowance cost. The reservoir holds approximately 8,100 gallons (at 54'x5'x4'). For the purpose of the estimates, it is assumed that it needs to be filled 8 times per year (complete draining for monthly cleaning), with an additional 25% assumed for evapotranspiration. (Total of 81,000 gallons) Water rate of $5.66/1,000 gallon is used.
Utilities: Supplemental			$1,000			$1,000	Annual allowance cost. Water use for drinking water, powerwashing/cleaning, spot watering, etc.
Utilities: Electricity			$20,000			$20,000	Allowance for light, restrooms, water features, etc.
Subtotal Material Expenses			**$161,740**			**$155,790**	
Total Maintenance Costs			**$392,147**			**$388,355**	**In 2019 dollar**
Total Maintenance Costs			**$404,696**			**$400,783**	**Escalated to 2020 dollar with an additional 1.5%**

Operating Costs for Kingsbury Commons Austin, Texas	Hrs	$/hr	Cost	Comments
Tasks Done As Needed	**Qty**	**Unit Cost**	**Cost**	**All in 2019 dollars**
EWF Complete Replacement	9,000	$6	$54,000	Done approximately once every three (3) years, at 9,000sf, assumes $6/sf installed
EWF Loading (In and Out) Cost	129	$19	$2,410	$17/hour of labor ($13.84 + 35% fringe), 114 hours for removal based on estimates
EWF Replacement Total			**$56,410**	
Event Lawn Replacement	17,526	$2.50	$43,815	Estimated replacement cost of $2.50 per square foot (2019 dollar)
Lawn Replacement Total			**$43,815**	
DG Complete Replacement		$240	$42,000	Done approximately once every three (3) years, at 25,000sf, assumes $240/ton installed ($42,000 spent in Construction Budget, 75 tons for vehicular pathway and 100 tons for pedestrian pathways)
DG Removal/Cleanup			$5,000	Allowance for removal, disposal/cleanup cost
DG Replacement Total			**$47,000**	
Hillside Restoration Materials				Allowance for the 10 restoration mottes. Done as funding allows.
Year 1			$42,000	$30,000 for TCC labor for 5 weeks, $12,000 for materials.
Year 2			$24,000	$18,000 for TCC labor for 3 weeks, $6,000 for materials.
Year 3+			$21,000	$18,000 for TCC labor for 3 weeks, $3,000 for materials.
Park Security & Monitoring				
Security supervisor	1,236	$35	$43,260	Security supervisor (an additional 1/3 time of security staff)
Security staff	3,744	$25	$93,600	Contracted security to provide coverage from 10pmT6am: 1 person patrol (8 hours/day) for 5 days, 2 person patrol (16 hours/day) for 2 days
Austin Police		$38	$0	
Uniforms, safety gears, phones, radios, etc.		allow	$7,500	Cost for first year, reduces after initial purchase
Subtotal Park Security				

Austin Invasive Species 1/2

	Species	Common Name	Plant Type	Disposal Treatment
	*Allanthus altissima*	Tree of Heaven	Tree	Remove and treat with herbicide within 5 minutes of initial cut.
	*Arundo donax*	Giant Reed	Grass	Repeated mowing and large scale removal of rhizomes. Herbicides not effective in killing roots.
	*Bothriochloa Ischaemum*	Bluestem, King Ranch	Grass	Mechanical removal. Systemic herbicides may be applied to coincide with different growth-stages.
	*Broussonetia papyrifera*	Paper Mulberry	Tree	Remove and treat with herbicide within 5 minutes of initial cut.
	*Centaurea melitensis*	Malta Star-thistle	Herbaceous	Mechanical removal and herbicide. clean tools and mowing equiptment to prevent spread.
	*Colocasia esculenta*	Elephant Ears	Herbaceous	Mechanical removal of plant including vegetative growth and and complete corm (tuber).
	*Cynodon dactylon*	Bermudagrass	Grass	Repeated tilling and disking to expose rhizomes.
	*Cyrtomium falcatum*	Japanese Hollyfern	Herbaceous	Mechanical removal.
	*Eichornia crasipes*	Water Hyacinth	Aquatic	Hand pulling and raking with a pond rake. Seeds remain viable in the substrate, so ongoing monitoring and control is necessary.
	*Firmaiana simplex*	Parasol Tree	Tree	Remove and treat with herbicide within 5 minutes of initial cut.
	*Hydrilla verticiallata*	Hydrilla	Aquatic	Harvesting and herbivorous fish such as sterile grass carp are the least toxic control methods.
	*Ligustrum lucidum*	Glossy Privet	Tree/Shrub	Remove and treat with herbicide within 5 minutes of initial cut.

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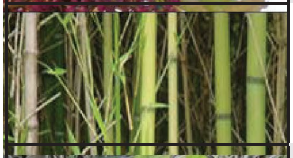
	Species	Common Name	Plant Type	Disposal Treatment
	*Lonicera japonica*	Japanese Honeysuckle	Vine	Mechanical removal and herbicide.
	*Macdadyena unguis-cati*	Catclaw vine	Vine	Mechanical removal or cut back and treat with herbicide within 5 minutes of initial cut.
	*Melia azedarach*	Chinaberry	Tree	Remove and treat with herbicide within 5 minutes of initial cut.
	*Nandina domestica*	Sacred Bamboo	Shrub	Mechanical removal or cut back and treat with herbicide within 5 minutes of initial cut.
	*Pistacia chinensis*	Chinese Pistache	Tree	Remove and treat with herbicide within 5 minutes of initial cut.
	*Phyllostachys aurea*	Golden Bamboo	Grass	Complete mechanical removal is most sucessful. Cut back and treat with herbicide within 5 minutes of initial cut.
	*Pueraria montana var. lobata*	Kudzu	Vine	Mechanical removal. Treatment with systemic herbicide following mowing/cutting.
	*Pyracantha coccinea*	Scarlet Firethorn	Shrub	Remove and treat with herbicide within 5 minutes of initial cut.
	*Rapistrum rugosum*	Bastard Cabbage	Herbaceous	Manual removal of plant and taproot, and disposal of seeds. Timely mowing regime will help reduce the invasive seed bank.
	*Sorghum halepense*	Johnson Grass	Grass	Treat with herbicide when new plants are young to prevent seed formation. Pull and excavate all rhizomes.
	*Tamarix ramosissima*	Salt Cedar	Shrub	Mechanical removal or cut back and treat with herbicide within 5 minutes of initial cut.
	*Triadica sebifera*	Chinese Tallow	Tree	Mechanical removal or cut back and treat with herbicide within 5 minutes of initial cut.